Name _____

Lab FW 1.5: Volume & Surface Area of Various Size Cubes

Date _____ Period _____

Filling & Wrapping Unit

Materials: Attached Worksheets
Optional: Isometric Dot Paper, Centimeter Grid paper (to cut out flat patterns if needed), Pencil, Scissors, Centimeter Cubes, Transparent "Scotch" tape

Key Learning: Explore and understand various methods to determine the dimensions, surface area, and volume of cubes of various sizes. Make predictions for larger cubes based on your findings with smaller cubes.

Guided Directions

this is a
PAIRS ACTIVITY

Find the dimensions, volume and surface area for the cubes on the attached worksheets.

Use the optional materials (listed above) if you would prefer to work with physical cubes.

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Lab FW 1.5: Volume & Surface Area of Various Size Cubes

Cube A

Length = 2__

Width = 2

Height = 2

# of cubes to fill base layer = _____

# of layers high= _____

# of unit cubes to fill box = _____

Volume:

$l \times w \times h = \_\_\_ \times \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^3$

Dimensions of Faces AREA

Front: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

Back: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

Top: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

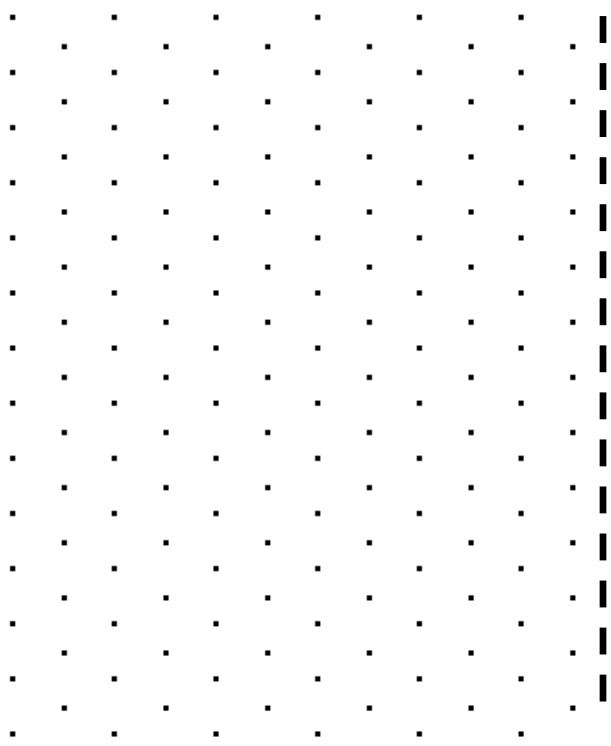
Base: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

Left Side: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

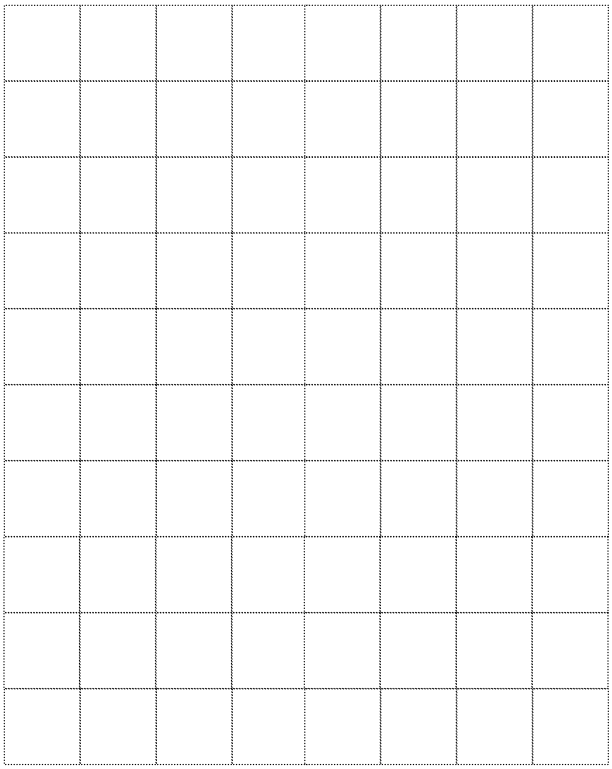
Right Side: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

SUM of AREAS (Surface Area): $= \_\_\_\_\_ cm^2$

*Draw a **3-D version** of Cube A using the isometric dots below.*



*Re-draw the **flat pattern or "net"** for Cube A on the centimeter square grid below. Label the faces as front, back, top, etc. Your drawing should outline the face panels only.*



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Cube B

Length = 3

Width = 3

Height = 3

# of cubes to fill base layer = _____

# of layers high = _____

# of unit cubes to fill box = _____

Volume:

$l \times w \times h = \_\_\_ \times \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^3$

Dimensions of Faces AREA

Front: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

Back: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

Top: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

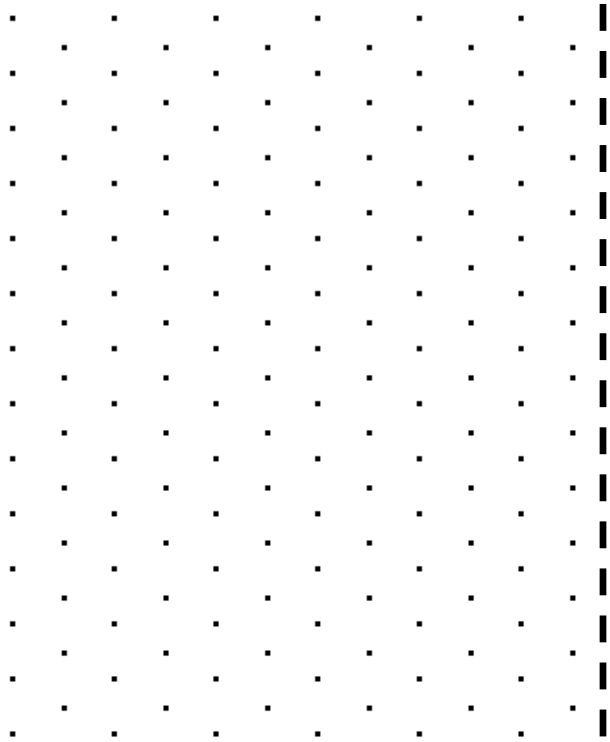
Base: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

Left Side: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

Right Side: $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_\_ cm^2$

SUM of AREAS (Surface Area): $= \_\_\_\_\_ cm^2$

*Draw a **3-D version** of Cube B using the isometric dots below.*



Name _____

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Lab FW 1.5: Volume & Surface Area of Various Size Cubes

Cube C	Length = 5 Width = ____ Height = ____ *# of cubes to fill base layer* = ____ *# of layers high* = ____ *# of unit cubes to fill box* = ____ Volume: $l \times w \times h = \_\_\_ \times \_\_\_ \times \_\_\_ = \_\_\_\_ cm^3$	Dimensions of Faces AREA **Front:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Back:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Top:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Base:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Left Side:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Right Side:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **SUM of AREAS (Surface Area):** $= \_\_\_\_ cm^2$

Cube D	Length = 12 Width = ____ Height = ____ *# of cubes to fill base layer* = ____ *# of layers high* = ____ *# of unit cubes to fill box* = ____ Volume: $l \times w \times h = \_\_\_ \times \_\_\_ \times \_\_\_ = \_\_\_\_ cm^3$	Dimensions of Faces AREA **Front:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Back:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Top:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Base:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Left Side:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **Right Side:** $l \times w = \_\_\_ \times \_\_\_ = \_\_\_\_ cm^2$ **SUM of AREAS (Surface Area):** $= \_\_\_\_ cm^2$